

Occupational Medicine Review of  
the Training Work Environment for  
Basic Military Trainees (BMT) at  
Lackland AFB  
Spring 2000

Seventh Annual Recruit and Trainee  
Health-Care Symposium in San Antonio,  
TX

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# Occupational Medicine Review of the Training Work Environment for Basic Military Trainees (BMT)

- Review order by the 59 Aeromedical Dental Group Commander January 2000
- Conducted by the Lackland AFB Occupational Health Working Group Committee
  - Flight Medicine, Industrial Hygiene, Public health, Occupational Medicine, and Preventive Medicine functions were represented

# Occupational Medicine Review of the Training Work Environment for Basic Military Trainees

- All aspects of BMT environment were reviewed
  - BMT is a six-week course held at LAFB. The BMT Environment consists of in-processing activities, many classroom activities, military drill (MD), physical conditioning (PC), work details, barracks life, Warrior Week (WW) held during the fifth week, and graduation on the sixth week. The sixth week is mostly graduation and career counseling activities.
  - WW can be divided into four main events: 1 ) Tent City Environment, 2) Confidence Course, 3) Combat Arms Training and Maintenance, and 4) the Field Training Experience. FTX includes an overnight stay in a prepared camp, the Military Field March, Tactical Training (TT), and Night Perimeter Training.

# Occupational Medicine Review of the Training Work Environment for Basic Military Trainees (BMT)

- Findings
  - BMT is a very safe environment for trainees. Since 1956, over one million trainees have attended BMT, only ten trainees have died from Occupational Injuries or Illness.
  - 70 % of trainee deaths from occupational injury or illness were caused by heat. Heat illness must remain as the number one concern to prevent serious occupational illness and death among trainees.

# Prevention of Heat Stroke

- Robust reporting system to identify heat injury cases to command so that steps can be taken to limit heat injury
- Constant Command emphasis on Heat Injury
- Base and training staff education program
- Risk assessment program for Heat Injury

# Reporting System

- Occupational illnesses, including heat illness, are reported to the 59 Public Health Flight and then through the Air Force Reportable Events Surveillance System (AFRESS). After further review of the AFRESS data it is reported to OSHA.
- Reporting of heat illness data should be included in many local meetings such as the LAFB Air Force Occupational, Safety and Health (AFOSH) Meeting and equivalent meetings at the 59<sup>th</sup> MDW and 37 TRW

# Reporting System

- The reporting of this surveillance data will help maintain an appropriate level of vigilance, and re enforce with medical providers the importance of reporting such cases.
- Frequent spot checks of reporting System a good idea
  - cases being identified and reported

# Command emphasis on Heat Injury

- Maintains vigilance
- Following activities indicate command interest
  - Current, enforced operating instructions
  - Requirement to consider heat injury when planning events (flags)
  - Considered in the base prevention program
  - Investigation of incidents
  - Heat Injury should be a standard agenda item at safety meetings/briefings
  - Base information system used to raise awareness



# Base and Training staff education program

- Set expectation that trainers have a high knowledge level on heat injury (not just a problem for the medics)
  - Trainers should be able recognize a case, can verbalize likely scenario of how case would present and initial treatment
  - Consider required briefs and written test for key base personnel
  - Hydration not a panacea, overhydration can be a problem

# Common Misconceptions about Heat Injury

- Heat Injury can be prevented or cured by adequate hydration, you can not drink too much water
- Heat Stroke can be prevented by diligent observation of supervising staff, there is plenty of warning if you are alert
- Heat injury does not present as sudden loss of consciousness
- Heat injury does not occur in green flag conditions
- If the person is sweating they do not have heat stroke

# Base and training staff education program

- Official guidance needs to be current and reflect the accepted knowledge base of the community
  - AFMAN 10-100 did not reflect accurately the most common type of heat stroke seen in military personnel nor adequately discuss prevention issues.
  - Exertional heat stroke is most common type of heat stroke in military personnel as opposed to classic heat stroke.
  - Sweating is profuse in exertional heat stroke and the patient is not dry as in classic heat stroke

**TABLE 3**

Comparison of Classic Heat Stroke and Exertional Heat Stroke

{short description of image}

Characteristic	Classic heat stroke	Exertional heat stroke
General health	Predisposing health factors	Healthy person
Age	Older	Y ounger
Occurrence	Often occurs during high temperatures	Occurs sporadically
Sw eating	Absent	Present
Activity	Sedentary	Strenuous
Disseminated intravascular coagulation	Uncommon	Common
Acute renal failure	Uncommon	Common
Lactic acidosis	Uncommon	Common
Hyperuricemia	Moderate	Severe
Hypokalemia	Rare	Common
Rhabdomyolysis	Rare	Common

# Risk Assessment Program for Heat Injury

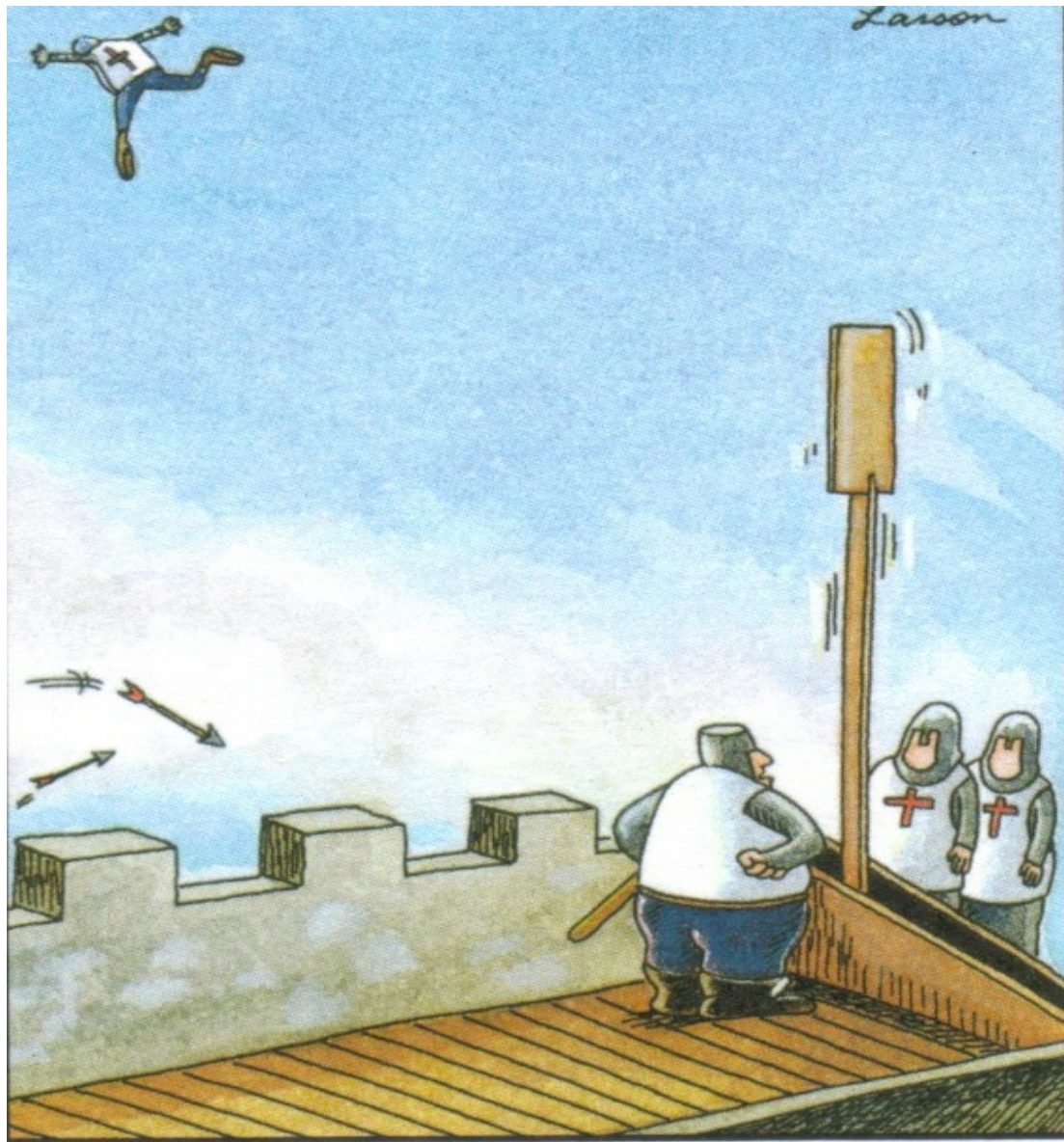
- Risk of heat injury based on weather assessment and with a permitted work level based on this assessment
  - Flags used categorize for level of weather threat
  - Weather evaluations need to be relevant for particular area of base, conditions on base may differ (clouds, rain, wind, ground cover, shade )
  - False sense of security can exist when flag level is at a low threat for heat injury
    - 40 % of Heat Strokes occurred in green flag conditions in 1999 at LAFB
    - Aviation Space and Environmental Medicine 67:354

# Risk Assessment Program for Heat Injury

- Involved in the prevention of heat injury is an assessment of the capability of the exposed individuals to withstand the stress.
- There is great individual variation in susceptibility to heat illness among trainees. Factors such as age, cardiovascular fitness, percent body fat, body surface area (correlates with height), weight, and acclimatization all impact an individuals ability to withstand heat stress.
- Trainees vary greatly in these characteristics. Mild stress for a 20 year old, 74 inch tall, muscular marathon runner trainee may be high threat for a 64 inch, 30 % body fat, 35 year old trainee who is not athletic.
- AFI 48-123 allows trainees to range in size from 58 inches in height and 132 lbs., to 80 inches in height and 254 lbs. in weight. Body fat may vary from 20 to 32% in trainees.
- Attention will need to be directed to the variation in trainee's capability when considering heat stress.

# Other Findings

- No snake bites, several non life threatening insect bites, wound care issues, mostly presumed spider bites
- The BMT Environment should receive the same attention as any base work site, and undergo routine OHWG surveillance with a required yearly review of key processes within the training environment. A review similar to this report should be reported annually to the Aeromedical Council and THC.
- Use of helmets, padding in obstacle course may be improved



"I told you guys to slow down and take it easy or something like this would happen."